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REARING CHICKS

FROM THE INCUBATOR TO THE LAYING PEN OR FATTENING CRATE

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POULTRY DIVISION
EXPERIMENTAL FARMS BRANCH

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REARING CHICKS

From the Incubator to the Laying Pen or Fattening Crate

BY

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H. S. GUTTERIDGE

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The principal purpose of this circular is to place before the farmer and poultryman in a brief convenient form the information relating to the raising of both egg-producing and market stock of the highest quality. Much of the information contained herein is abbreviated from bulletins and circulars already obtainable from the Department, a list of which may be found on the last page.

Too much emphasis cannot be placed on quality in the preparation of poultry products. Quality is becoming of greater importance as time goes on; this applies to all markets, domestic and export, and particularly to the English market which is gradually opening to Canada. Consequently, the operator who is seriously attempting to obtain the most profit from his labour and investment will do well to keep the factor of quality in mind.

The information contained herein is intended primarily for the poultryman who hatches or buys day-old chicks in quantities sufficiently large to make use of artificial brooding and rearing equipment. Selection of the breeding stock, or the source of the day-old chicks, is not discussed, but it should be stated that emphasis should be placed upon the necessity of having only strong, vigorous chicks, free from disease.

METHODS IN BROODING AND REARING

There are many systems of artificial brooding in use, such as the battery, the hot water pipe system, and the gas, oil and coal burning heater. Of these the coal or oil stove for colony brooding has proved most satisfactory for general Canadian conditions, although the battery system is being used to a very considerable extent for the starting of chicks or for the raising of broilers.

The brooder stove may be used in a spare room in any well-built outbuilding or poultry house, but in such case the quarters should be thoroughly cleaned and disinfected before use and all connection broken with any mature stock which may be on the farm.

The safest method to follow is the use of portable colony houses which may be moved from time to time as needed to assure the chicks having fresh uncontaminated ground over which to run. A 10-foot by 12-foot colony house will comfortably accommodate from 200 to 300 chicks.

Preparing for the Chicks.—On the floor, in the centre of the house, place a sufficient number of bricks on their flat side, or a tin mat, to stand the stove on; then place a guard of 1- by 4-inch lumber on edge around this, leaving about a foot clearance all around the stove. Inside the guard fill in with sand, thus avoiding all danger of fire from the stove. On the rest of the floor litter should be placed to a depth of one or two inches. Planer shavings have been found excellent for this purpose, but chaff or even fine gravel is very often used. Where

shavings or chaff is used the attendant should see that the surface of the sand around the stove is kept free from litter.

Four pieces of galvanized iron or stiff wire mesh about 3 feet long by 18 inches high are used to round the corners of the house to prevent crowding.

Wire-netting-covered frames 2 or 3 inches high and about 4 feet long are placed on the litter on the floor, on which are set water fountains and mash hoppers, which raise them sufficiently high to prevent the litter and droppings from being scratched into them.

Hoppers of chick-size grit, oyster shell and charcoal are hung at a convenient height on the walls or placed on the wire frames.

For the first few days a guard made of either square mesh, stiff wire cloth or galvanized iron about a foot high is used to circle the stove until the chicks get used to the source of heat. Each day this circle is enlarged until finally the guard is removed entirely. Care should be taken to make the enclosed circle sufficiently large so that the chicks are not kept too close to the source of heat.

A chick should be kept as cool as may be for comfort, but it should always have a source of heat where it may go to rest in a temperature of about 100°. No thermometer, however, is as good an indicator as the chicks themselves. Their actions will tell at once whether they are comfortable or not. If comfortable they will rest contentedly in a circle just outside the canopy of the stove; if not warm enough they will declare the fact by their discontented chirping and crowding to the source of heat; if too hot they will get as far away from the stove as possible or go around with their mouths open panting for breath.

The length of the brooding period usually runs from four to eight weeks, depending largely on the weather. The temperature should be gradually lowered as the comfort of the chicks will permit. Give the chicks an abundance of fresh air.

Roosts on frames covered with wire mesh to prevent the chicks coming in contact with the droppings should be installed when the chicks are three to four week old so as to encourage early roosting. These should be placed on the slope, the back part of the frames a foot or more above the floor and the front of the frames resting on the floor so that the chicks will take to them more readily. When the chicks get accustomed to them the frames may be raised in front so that the roosts will be on the level as in the laying houses.

When the chicks are old enough to do without heat the stoves should be removed; the sexes should be separated, the cockerels to be retained for the selection of breeders, being put in separate runs in range roosting coops; those for broilers should be put in more or less confined quarters and fed a finishing ration. The pullets should be allowed to remain in the brooder houses until they require more room, when a sufficient number should be taken out and placed in roosting coops to assure the balance being not overcrowded.

Feeding the Chicks.—When the house has been made ready, the fountains filled with water from which the chill has been removed, the hoppers with grit, shell, charcoal and dry mash and a little coarse river sand, chick grit or fine oyster shell scattered over the surface of the mash in the hoppers, the chicks are put in the house spread in a circle on the floor just outside the canopy and they are well started. Feeding is allowed right from the start and everything is practically automatic, requiring very little time to attend to a colony. Tend the stoves regularly, seeing that they are properly regulated. Keep the fountains filled with fresh water and the feed hoppers with dry mash. Weather permitting, get the chicks out on to the ground as soon as they get used to their quarters, say by a week or ten days, and be sure that the ground is clean and uncontaminated. When this is done a board about 3 feet long and 12 inches high is placed about a foot back from the exit and another board from the top of this to the wall above the exit. This forms a passage for the chicks to get

to the exit and prevents the wind from blowing in the opening and directly under the hover.

Most of the commercial chick starters are satisfactory but care should be taken to see that they do not contain too high a percentage of fibre.

The following is a starter which can be recommended as it has been used at the Central Experimental Farm in comparison with many of the much higher priced feeds and has invariably given good results:—

One part shorts, one part middlings, one part ground yellow corn, one part ground oat groats, one-half part animal feed mixture. To 91·5 pounds of the above mixture add 5 pounds alfalfa leaf meal, 2 pounds bone meal, 1 pound cod liver oil, ½ pound of salt. The animal feed mixture used is made up of equal parts ground beef scrap, fish meal, and milk powder. Where liquid milk can be had the milk powder is omitted and where fish meal is not readily available its replacement by meat meal will not greatly interfere with the results.

If the ration is changed materially at any time, it should be done gradually, feeding the new ration in conjunction with the one the birds have been used to rather than switching abruptly from one to the other. Similarly when adding scratch grain to the ration a small quantity should be fed when the chicks are eight to ten weeks of age and this gradually increased until by the time the chicks are on range at about twelve to fourteen weeks of age it may be fed at the rate of equal parts grain and mash or more.

The growing mash is identical with the chick mash except that when the chicks get on to good range with plenty of green feed, the cod liver oil and alfalfa may be omitted and bran may be substituted for the shorts. If home-grown grains are available they may be ground and used to advantage at this time, but the quantity of these grains used should be adjusted so as not to change the analysis of the above-quoted mash to any extent.

Separating the Sexes.—As soon as there is any indication of the cockerels becoming troublesome take them away from the pullets and keep them separated from then on. Keep the pullets on good green range. Move the colony houses on to clean ground when necessary and put roosts in and get the pullets roosting as soon as feasible. Keep the water pans and mash hoppers upon screened platforms, and see that there is plenty of wholesome mash before them at all times. When grain is fed it should not be scattered in the litter but fed on top of the mash or in special troughs for the purpose, since picking up grain from litter contaminated with droppings is very likely to spread parasitic diseases if present.

Types of Poultry for Market

Caponizing.—Any breed may be caponized, and the operation should be carried out before any great amount of comb and wattle development is noticeable (usually 6-8 weeks in Leghorns and correspondingly later in heavy breeds).

Caponizing the heavier breeds of cockerels has been practised in a limited way for years. More recently the practice has been tried with Leghorns in order to see if it is possible to sell as capons Leghorn cockerels that cannot be disposed of as broilers, or early roasters. Experiments have been conducted with Leghorn capons to see if an export market could be secured for a light roaster, thus making it profitable to keep Leghorn cockerel chicks rather than to destroy them as soon as they are distinguishable from the females.

The only profitable way to handle Leghorn capons is to sell them when they are from 4 to 5 pounds in weight. Capons properly finished make very desirable table poultry, and should bring a higher price than the same size and breed of cockerels. If they are intended for export to England care must be taken that the flesh is white and the spur must not be noticeable. In order to obtain the white flesh, rank green feed such as alfalfa should not be available, yellow corn should not be fed, and a longer finishing in the crates may be

advisable. To keep the spur down, cut the top off of the spur button and rub lightly with a caustic pencil at the age of caponizing.

The caponizing of the heavier breeds is for the purpose of holding the flesh soft to a later season, when they may be sold at good prices. Such capons do bring higher price than cockerels, but it does not pay to hold them to eight and ten months, as has been so often recommended.

Treatment of the Broilers.—When the cockerels are being separated it is a good plan to go over them carefully, and if it is the intention to market any as broilers select those that are large enough and give special pen feeding upon wet mash until well fleshed. This selection may be repeated until the chicks are too large or the broiler market is past. Broilers are too often little more than skin and bones, and as such are not an asset to the industry. Neither do they bring profit to the producer or satisfaction to the consumer. Care should be taken to feed so as to keep such in the best of flesh and market only those that are plump.

Treatment of the Roasters.—The rest of the cockerels, in case there is not a local market as broilers for all of them, should be kept on a good growing feed until they are the weight required for roasters. This will depend upon the breed and the market on which they are to be sold. They should not be kept until mature or staggy before marketing as such birds are discriminated against.

Finishing Poultry for Market

Putting the finishing touches on a product before offering it for sale yields the greatest proportionate return from any labour done on the average farm. In no case is this more true than with the proper feeding and finishing of poultry. By the comparatively simple process of crate feeding, using suitable rations, the grade of the farm flock range-fed bird can be raised from "Selected B" into the "Milkfed B" or "Milkfed A" class. In the process not only is the grade of the product improved but added value through increased weight is secured.

Crate feeding gives the highest quality flesh, though feeding in clean, sanitary pens makes the best substitute. Only healthy birds of any kind will pay for feeding. Before confining them in crates or pens they should be given a laxative and made clean of lice. Two to three weeks are required for the finishing. The Experimental Farm has found that almost any good mixture of home-grown grains finely ground and mixed with milk will serve the purpose.

A satisfactory finishing ration may be composed of the following:—

One part finely ground whole wheat.
One part finely ground whole barley.
One part finely ground whole oats.

Fresh skim, whole milk, or buttermilk should be used as a mixer. This ration is satisfactory for all market poultry except geese and ducks.

All feed should be given in a wet state, mixed to the consistency of thin porridge so that it can be poured from a pail or dipped out with a flat ladle or shingle.

The best materials for mixing the dry ingredients of the ration are, in order of relative value: Home-made buttermilk, sour milk or skim-milk and commercial buttermilk powder or semi-solid buttermilk.

Better results are obtained when the milk used in mixing is either always sour or always sweet throughout the feeding period.

The beginning of the feeding period is most important. If the birds placed in the feeding crate have feed in their crops they should be starved for twenty-four hours. They should then be given a purgative in the form of Epsom salts

in the first feed, the dosage being at the rate of one pound of Epsom salts to one hundred birds. The salts should be dissolved in water and the solution used for mixing the first feed.

Don't overfeed at first—feeding the birds all they will eat the first day results in loss of appetite. For the first few days the birds should be kept fairly hungry and never satisfied until they become used to their confined quarters. After that, as much feed as they will take in from 15 to 20 minutes may be given. After every feed, however, the troughs should be cleaned, and a supply of grit should be available two or three times a week.

Best results are obtained by not more than three feeds a day, and during the short days two feeds are enough. The duration of the crate feeding depends upon the condition of the birds when put into the crates but a period of two to three weeks usually is sufficient.

The time for this extra feeding is before the birds leave the hands of the producer. Of course, if the farmer will not do the feeding it is better for some person to finish the bird before it is marketed, but it is a loss to the producer if he does not do this himself. If the poultry is sold in a thin condition the opportunity to make the most profit is lost to the seller. In the early part of 1900 many Canadian farmers had their own feeding crates and finished their own birds; as a result there was a good grade of poultry marketed for which the farmer received most of the profit. Much of this crate-fed poultry was exported to Great Britain, where it gained a high reputation. But with better times the farmer seemed to want to get rid of the work, and let some one else take the profit if he also would take the trouble of feeding and killing. Unfortunately this attitude has resulted in the fact that too little of the poultry has received any extra feeding.

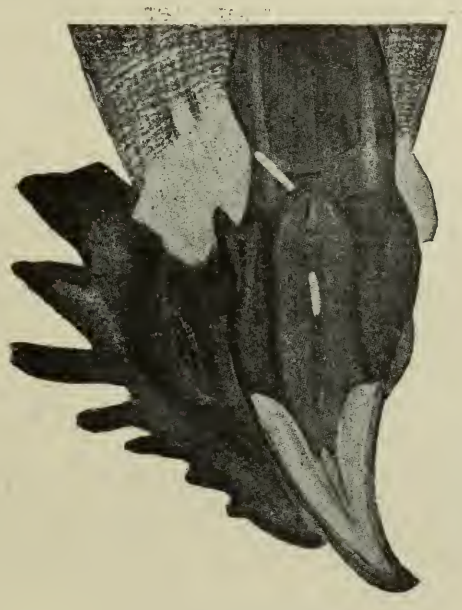
Killing and Plucking

The question as to whether birds should be killed and plucked upon the farm or not is a difficult one to answer. Observation of birds marketed in the dressed condition by farmers seems to indicate that the difficulties in obtaining a proper stick and bleeding are so great that in many cases birds which would otherwise be of good market quality are ruined by poor bleeding, poor plucking and pinning, and torn and rubbed skin. As a matter of fact even very experienced operators who are killing continuously have a proportion of their birds improperly bled. Hence the difficulty of the farmer who kills only a few birds once or twice a year can be appreciated. There is much to be said in favour of all killing and plucking being done by experts at killing and packing centres. Still it is not the intention that all killing upon the farm should be discouraged for there are farmers who can do this as well as any professionals, but they are comparatively few. When a good killer and plucker is available in any community it seems too bad that he should not do the killing for the whole neighbourhood; this makes it possible for the output to be uniformly good and the producer to get more of the selling price.

Instructions for killing and plucking are given herewith for the benefit of those who are or may become proficient at this practice.

How to Kill.—The best method to use in killing poultry is to bleed through the mouth and then to pierce the brain. The best method of bleeding at present known is to cut the jugular vein within the mouth, as is clearly shown in the accompanying illustration, which should be closely studied. After this cut is made and as soon as the bird is bleeding freely, the brain should be pierced. This is done by placing the blade of the knife in the groove in the roof of the mouth, as shown in the illustration. Perfection in killing can only be attained through practice. A knife specially suited to the purpose of killing poultry can

be purchased, but if this is not available any sharp-pointed knife with not too broad a blade will serve.



HOW TO KILL

The white mark across the vein on the left side of the bird's neck is the place to cut to bleed. The white mark in the roof of the mouth indicates the place to enter the blade to pierce the brain.

Plucking.—For use on the farm the most practical method of dressing poultry is the dry pluck. It is quick, easy and when properly done leaves the bird attractive in appearance. Experienced poultry pluckers can strip the feathers off a bird in from forty to ninety seconds, and a little practice will enable the average individual to remove all the feathers from a bird in from a minute to a minute and a half.

In dry plucking experts follow a well-outlined procedure. With the left hand steadying the bird by pinioning the wings to the back, the right hand in three motions strips the feathers from the wings and tail; the body feathers are next stripped, starting with the breast from the hips downward, then the back, neck and wings, and finally the leg feathers.

The ease with which feathers can be stripped off depends directly upon the accurate piercing of the brain and the nerve centre immediately behind the brain. This causes a reflex action in the muscles of the skin cells holding the feathers, with the result that when properly done the feathers almost literally drop out. After the bird is picked clean, and before it is hung on the cooling rack, care should be taken to see that the lower bowel is freed from excrement. This is done by pressing the abdomen, from a point three or four inches from the tail, sharply inwards and towards the vent.

Wax plucking has much to recommend it, for those who have a large number of birds to pluck at once. The method of wax plucking is set forth in detail in a bulletin in the list recommended on the last page of this publication.

If farm killing is going to be done the greatest care should be taken with regard to cooling birds. Immediately after they are killed and plucked they should be kept for 24 hours in a temperature not above 40 degrees, and preferably at 32 or 35 degrees. In the fall season the weather is cold enough to pre-cool the birds, with little or no difficulty. The point to watch then is that the birds are not allowed to freeze. During the hot summer months farm killing is a more dangerous practice because of the lack of facilities for pre-cooling. If the producer has a good cool place to do this such as a cool cellar, killing and plucking can be done on the farm during the warm weather, as well as during

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the fall or winter. Farmers would be well advised to check the temperature of the room where they are going to pre-cool the birds. This can easily be done by the use of an ordinary dairy thermometer.

Selecting the Layers

From the pullets that are maturing make sure that a good selection is made when the layers are picked out. Save nothing but the most active and vigorous pullets of good type, those that have no disqualifications, and that give evidence of health and constitution. The birds which will not qualify in these particulars should be put into crates and finished for the market as they will pay better in the feeding crate than in the laying pen.

Publications Available

For additional and more detailed information upon the various subjects treated herein, the reader is referred to the following bulletins or circulars which may be secured from the Publicity and Extension Branch, Department of Agriculture, Ottawa.

Natural Incubation
Artificial Incubation
Brooding and Rearing of Chicks
Capons and Caponizing
Poultry Feeds and Feeding
Poultry House Construction
Preparing Poultry for Market
Finish Poultry Before Marketing
The Use of Wax in the Plucking of Poultry

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